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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT A. KISCH

Appeal 2015-005932
Application 12/029,676
Technology Center 1700

Before JEFFREY T. SMITH, KAREN M. HASTINGS, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1, 2, 4–7, and 28–34. We have jurisdiction under 35 U.S.C. § 6.

We REVERSE.

Appellant's invention is directed to a method of identifying or compensating for mislocations in a placement of tows by a fiber placement machine. App. Br. 4–6. Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A method of identifying mislocations in a placement of tows by a fiber placement machine, comprising:

laying down a first test layup comprising a first plurality of tows using the fiber placement machine and a controller program;

scanning the first plurality of tows, wherein scanning the first plurality of tows generates position data for the first plurality of tows, and wherein the position data comprises a separate corresponding position of each of the first plurality of tows;

comparing the position data with reference datum to identify mislocations, wherein the reference datum comprises a separate corresponding correct position of each of the plurality of tows;

determining if the mislocations are within predetermined limits;

generating compensation values from identified mislocations outside of the predetermined limits;

modifying the controller program using the compensation values to form a modified program; and

using the modified program to lay down a second test layup comprising a second plurality of tows, the second test layup being substantially similar to the first test layup but comprising placement adjustments resulting from the compensation values in the modified program.

Appellant (App. Br. 4) requests review of the following rejections from the Examiner's Final Action:

I. Claims 1, 2, 4–7, and 28–34 rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement for the claim term "predetermined limits" used in independent claims 1, 28, and 29.

II. Claims 1, 2, 4–7, and 28–34 rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

III. Claims 1, 2, 6, 7, and 28–34 rejected under 35 U.S.C. § 103(a) as unpatentable over Oldani (US 2007/0173966 A1, published July 26, 2007) and Engelbart et al. (US 2005/0203657 A1, published September 15, 2005) ("Engelbart").

IV. Claims 4 and 5 rejected under 35 U.S.C. § 103(a) as unpatentable over Oldani, Engelbart, Rueb et al. (US 2005/0082262 A1, published April 21, 2005) ("Rueb") and Dorsey-Palmateer (US 5,341,183, issued August 23, 1994).

OPINION

Rejection I (35 U.S.C. § 112, first paragraph (enablement))

We REVERSE.

The Examiner asserts that the Specification does not enable one skilled in the art to make or use the invention because it does not provide a definition or standard defining the term "predetermined limits" used in independent claim 1, 28, and 29 so as to inform one skilled in the art what limits are predetermined. Final Act. 3–4. According to the Examiner, it would take undue experimentation for one skilled in the art to ascertain the meaning of the "predetermined limits." *Id.* at 4–6.

We agree with Appellant that a person having ordinary skill in the art would understand that "predetermined limits" within the field of fiber

placement defects are situation dependent based on materials and desired use. App. Br. 17–18. Moreover, the Specification describes as known to adjust the placement of tows by first measuring the start placement or end placement for each tow of each course placed on a tool base and comparing the measurement to scribe lines on a tool base to determine any deviations between the tows and the scribe lines and subsequently adjusting the placement of the tows to minimize the deviations within a predetermined, acceptable distance of the scribe lines (predetermined limits). Spec. ¶ 4. That is, the Specification provides guidance to one skilled in the art as to the meaning of the objected term. The Examiner has not provided an adequate explanation why this disclosure does not enable one skilled in the art to make or use the invention.

Accordingly, we reverse the rejection under 35 U.S.C. § 112, first paragraph, for the reasons presented by Appellant and given above.

Rejection II (35 U.S.C. § 112, 2nd Paragraph)

We have reviewed the respective positions of the Examiner and Appellant regarding the issues raised with respect to claims 1, 28, and 29 under 35 U.S.C. § 112, 2nd paragraph. Final Act. 6–7; Ans. 17–19; App. Br. 21. We determine that the ordinarily skilled artisan would understand that “predetermined limits” means limits for the differences between the position data as compared to the reference datum (i.e., mislocations) that are acceptable for a particular tow and a part being manufactured. We REVERSE the rejection for the reasons presented by Appellant and those reasons discussed above with respect to the rejection under 35 U.S.C. § 112, 1st paragraph.

Prior Art Rejections

Rejection III¹

After review of the respective positions provided by Appellant and the Examiner, we REVERSE the Examiner's prior art rejection of claims 1, 2, 6, 7, and 28–34 under 35 U.S.C. § 103(a) for the reasons presented by Appellant. We add the following.

Independent claim 1 is directed to a method of calibrating and automated fiber placement device by using test fiber tow layups on a tool base having datum lines representing the desired product design, as shown in Figure 8 of the Specification. Spec. 17–18. In this way, the claimed invention ensures that the fiber tows, once placed, will result in the desired product prior to actual production. *Id.* This is done by comparing the test layup against the datum lines to ascertain whether significant deviations exist between them that require modifying the device's control system programing to result in a more desirable result.

We refer to the Examiner's Final Action for a statement of the rejection. Final Act. 7–16.

Appellant argues both Oldani and Engelbart are directed to making production layups and not test layups used to identify mislocations in the test layups against a datum line as claimed. App. Br. 11–13; Reply Br. 6–7. According to Appellant, Oldani and Engelbart do not subsequently modify a controller program for an automated fiber placement device based on the mislocations identified by either Oldani or Engelbart to lay down a second

¹ All independent claims require laying a test layup comprising a plurality of tows using the fiber placement machine and a controller program. We limit our discussion to independent claim 1.

test layup, as claimed. App. Br. 11–13; Oldani ¶¶ 18, 23, 26, 61, 64; Engelbart Figure 2B, ¶ 49.

We agree with Appellant. The Examiner found Oldani discloses a process of making a product using an automated fiber placement (AFP) device that comprises comparing a virtual image 114 of the desired product with a visual image 112 of a fiber layup 102. Final Act. 7–8; Oldani Figure 1, ¶ 43. The Examiner also found Engelbart discloses a method of repairing a fiber layup by identifying defects and using an indirect quantitative measurement of the defect based upon correlation data to repair it. Final Act. 8–9; Engelbart ¶¶ 41–42. However, the Examiner directs us to no portion of Oldani or Engelbart that discloses their respective fiber layup as a test layup. In addition, the Examiner directs us to no portion of Oldani that discloses using the result of the comparison between virtual image 114 and visual image 112 to modify the controller program for the AFP device. On the contrary, paragraphs 60–64 of Oldani disclose that the results of the image comparison are stored for historical purposes. This finding supports Appellant’s contention that fiber layup 102 of Oldani is a production layup and not a test layup as alleged by the Examiner. App. Br. 15. Thus, the Examiner does not adequately explain how the process of Oldani would have been modified by one skilled in the art to include the steps of using test layups as claimed absent impermissible hindsight. App. Br. 13–14. In addition, the Examiner has not adequately explained how Engelbart’s disclosed repair process would have led one skilled in the art to recognize the use of test layups as claimed. Thus, the Examiner has not provided an adequate explanation of how the combined teachings of the cited art would have led one skilled in the art to the claimed invention.

Under these circumstances, we cannot conclude that the Examiner has met the minimum threshold of establishing obviousness under 35 U.S.C.

§ 103(a). *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Accordingly, we reverse the Examiner's prior art rejection of claims 1, 2, 6, 7, and 28–34 under 35 U.S.C. § 103(a) for the reasons presented by Appellant and given above.

Rejection IV

The Examiner's prior art rejection of claims 4 and 5 under 35 U.S.C. § 103(a) is premised on the teachings of Oldani and Engelbart rendering the subject matter of independent claim 1 obvious to one skilled in the art. Final Act. 16–17. As discussed above, such is not the case. The Examiner did not rely on the additionally cited secondary references to overcome the previously noted deficiencies of Oldani and Engelbart. *Id.*

Accordingly, we also reverse the Examiner's prior art rejection of claims 4 and 5 for the reasons presented by Appellant and given above.

ORDER

The Examiner's rejections of claims 1, 2, 4–7, and 28–34 under 35 U.S.C. § 112, first paragraph (enablement) is reversed.

The Examiner's rejection of claims 1, 2, 4–7, and 28–34 under 35 U.S.C. § 112, second paragraph is reversed.

The Examiner's prior art rejections of claims 1, 2, 4–7, and 28–34 under 35 U.S.C. § 103(a) are reversed.

REVERSED